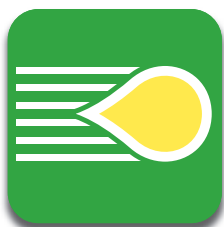


High Efficiency Non-Toxic Heat Transfer Fluid with Antifreeze Function. Based on Ethylene Glycol blended with patented DeTox™ additive and BS6580 proven Corrosion, Scale and Biological Inhibitors.



Anti-Freeze



Optimum Flow



Non-Toxic



Biodegradable



Corrosion Control



Quality Assured

Properties:

THERMOX DTX has been especially formulated to exploit the advantages Ethylene Glycol has over Propylene Glycol. Specifically;

- More efficient heat transfer.
- Easier to pump, especially at low temperatures.
- Less volume for the same freeze protection.
- Cheaper per litre.

Although based on Ethylene Glycol, **THERMOX DTX** has been tested and classified as Non-Toxic ¹ by an EPA ² certified laboratory. Previously Propylene Glycol was the only non-toxic glycol available. That is no longer the case.³

Hydratech in alliance with Evans Cooling Systems, Inc. have developed and patented the **DeTox™** additive. **DeTox™** prevents Ethylene Glycol from being metabolised (during digestion) into toxic by-products, which cause kidney failure, blindness and death.⁴ Tests carried out on **THERMOX DTX** confirmed the toxicity was “so low that it was impossible to determine an LD50 ⁵ value”.

The **DeTox™** additive has very little effect on heat transfer or antifreeze performance. In fact similar volumes of **THERMOX DTX** or Ethylene Glycol are required to achieve a specific freeze protection.

THERMOX DTX mixtures are readily biodegradable (90% over ten days) and will not remain in the environment or bio-accumulate.

THERMOX DTX contains synergistic corrosion inhibitors to protect metals commonly found in such systems. It has been tested in accordance with BS5117 and found to meet BS6580 corrosion standards for mild & stainless steel, aluminium, copper, brass and cast iron. Zinc or galvanised components are not recommended for use with closed loop cooling or heating systems.

THERMOX DTX also contains scale and biological inhibitors to help prevent fouling – thus promoting long operational life and high thermal efficiency.

Properties (continued):

THERMOX DTX is miscible with water in all proportions and can protect Geothermal and Air Source systems down to -50°C depending on concentration.

THERMOX DTX is a clear, slightly viscous liquid. It is mildly sweet to the taste and has a non-pungent but characteristic aroma.

THERMOX DTX exhibits super-cooling characteristics and mixtures containing in excess of 50% by volume do not freeze solid, alleviating any concern over possible expansion and burst damage.

Density: 1.04 – 1.15 g/cm³ depending on inhibitors

PH: 7.5 – 10.5 depending on inhibitors

Boiling point: $>100^{\circ}\text{C}$

Application

As per BSRIA guide AG 1/2001.1 all pipe-work systems should be clean and free from biological contamination prior to commissioning.

To minimise corrosion air ⁶ ingress should be minimized. A pressurised system is best.

Determine the total system volume and add **THERMOX DTX** to the system according to the minimum operating temperature required (see table). The minimum dose of **THERMOX DTX** should not be less than 25% of the system volume and the maximum does not normally exceed 60%. We recommend the use of deionised, distilled or UltraPure™ water for this dilution. Avoid water containing high levels of calcium salts or Chlorides [Cl-].

Health & Safety: Please refer to the associated Safety Data Sheet.

Shelf Life: 3 years when stored in sealed containers out of direct sunlight.

Available in: 5, 10, 15, 20, 25, 205 & 1000 litre containers and in bulk tankers.

THERMOX DTX can also be supplied pre-mixed, as a Ready-To-Use solution.

Mixing Guide for THERMOX DTX

Frost Protection °C	% v/v of THERMOX DTX in the system	Refractive Index
-10	22%	1.356
-15	28%	1.362
-20	33%	1.367
-25	38%	1.372
-30	42%	1.376
-35	46%	1.380

When measuring the percentage of **THERMOX DTX** in the system use a refractometer



SUREFLOW Support Services ensure that end users and distributors receive the full benefit of working with a specialist manufacturer. E.g.;

- Fluid Maintenance Program; for the proactive verification of fluid and system condition.

Nomenclature

- 1 According to the Hodge & Sterner Toxicity Scale, an LD50 rating between 500 – 5,000 mg/kg body-weight (bw) is classed as "Slightly Toxic" and anything above 15,000 mg/kg bw is classed as "Relatively Harmless" I.E. Non-Toxic.
- 2 EPA = United States Environmental Protection Agency.
- 3 **THERMOX DTX** LD50 (Oral Rat) $>21,000$ mg/kg bw.
Propylene Glycol LD50 20,000 mg/kg bw.
Ethylene Glycol LD50 4,700 mg/kg bw.
- 4 According to the US Department of Health & Human Services as little as 150ml of Ethylene Glycol can lead to death and much smaller amounts can lead to renal failure in humans.
- 5 LD50 = Lethal Dose (oral) that causes the death of 50% of the lab rats.
- 6 Oxygen feeds the corrosion process and consumes inhibitors.